

We Claim:

1. A method of producing a nodulation inoculant containing reduced amounts of cell density factor (CDF) comprising the addition of iron to growth medium for a nodulation inoculant in amounts sufficient to reduce the concentration of CDF.
2. A method of screening an extract or cell culture supernatant for the presence of an IND-1, IND-2, CDF, or CDF-like compound comprising:
  - a) obtaining an extract or cell culture supernatant;
  - b) contacting a host cell transformed with one or more genetic constructs containing a reporter enzyme selected from the group consisting of *nolA-lacZ*, *nodY-lacZ*, *nodC-lacZ*, or *nodD-lacZ* with said extract or cell culture supernatant; and
  - c) analyzing the contacted host cell for the modulation or expression of said *nolA-lacZ*, *nodY-lacZ*, *nodC-lacZ*, or *nodD-lacZ* reporter enzyme.
3. The method according to claim 1, wherein said iron is  $\text{Fe}^{3+}$ .
4. The method according to claim 1, wherein said nodulation inoculant comprises *Bradyrhizobium* species.
5. The method according to claim 1, wherein said nodulation inoculant comprises *Bradyrhizobium japonicum*.
6. The method according to claim 1, wherein medium is liquid.
7. The method according to claim 1, wherein said iron is added prior to the addition of the nodulation inoculant.

8. The method according to claim 1, wherein said iron is added simultaneously with the nodulation inoculant.
9. The method according to claim 1, wherein said iron is added after the nodulation inoculant.
10. The method according to claim 1, wherein said iron is added to the nodulation inoculant and the iron containing inoculant is added to the medium.
11. The method according to claim 1, wherein said iron is separately added to the nodulation inoculant and the medium.
12. The method according to claim 1, wherein the iron has a concentration of at least about 0.5  $\mu$ M or at least about 0.1M.
13. The method according to claim 1, wherein the iron has a concentration that ranges from 0.5  $\mu$ M to 1M.
14. An isolated compound selected from the group consisting of IND-2 and CDF.
15. A composition comprising a soil additive or conditioner and a compound selected from the group consisting of IND-1, IND-2, and CDF
16. The composition according to claim 22, wherein the compound is IND-1 (bis-ethyl-hexyl-ester phthalate).
17. An isolated bacterial cell defective in recognition of Nola inducer compounds.

18. The isolated bacterial cell according to claim 21, wherein said bacterial cell contains a defect in the *nwsB* gene.

5 19. A method of suppressing the nodulation activity of indigenous nodulating bacterial cells comprising the addition of one or more NolA inducers to soil containing said indigenous nodulating bacterial cells.

20. The method according to claim 19, wherein said NolA inducer is bis-ethyl-hexyl-ester phthalate (IND-1/BEHP), IND-2, or CDF.

10

21. A composition comprising a carrier and a nodulation inoculant produced according to the process of claim 1.